

# SUBJECT INDEX

## A

- Acatalasemia**  
   catalase deficiency and, 206  
**Acetaminophen**  
   methemoglobinemia and, 4  
   nephrotoxicity of, 340-42  
**Acetanilide**  
   major metabolite of, 3-4  
   methemoglobinemia and, 3  
**Acetophenetidin**  
   See Phenacetin  
**N-Acetylaminopyrine**  
   aminopyrine acetylation and, 5  
**Acetylcholine**  
   coexistence with adenosine triphosphate, 293  
   coexistence with vasoactive intestinal peptide, 286  
   endothelium and, 45  
   galanin receptor activation and, 300  
   gastric effects of, 270  
   inactivation of, 13  
   Purkinje fiber inward current and, 64  
   release of  
     neuropeptides and, 166  
     thermoregulation and, 431-32  
     vascular smooth muscle and, 391-92  
**Acetylcholinesterase**  
   acetylcholine inactivation and, 13  
**N-Acetylcysteine**  
   doxorubicin therapy and, 200  
   hyperbaric oxygen toxicity and, 203  
**N-Acetyl-p-aminophenol**  
   acetanilide metabolism and, 3-4  
   phenacetin metabolism and, 4  
   See also Acetaminophen  
**N-Acetylprocainamide**  
   early afterdepolarizations and, 72  
**N-Acetylserotonin**, 19  
   5-methoxy-N-Acetyltryptamine  
   See Melatonin  
**Aconitine**  
   early afterdepolarizations and, 72  
**Acquired immune deficiency syndrome**, 411-25  
   etiologic agent of, 411-13  
   heroin addicts and, 481-83  
**ACTH**  
   See Adrenocorticotropin
- Adenosine**  
   erythropoietin production and, 103-4  
**Adenosine A1 agonists**  
   renin secretion and, 107  
**Adenosine receptor**  
   renal, 103-4  
**Adenosine triphosphate**  
   coexistence with acetylcholine, 293  
   endothelium and, 45  
   epinephrine metabolism and, 12-13  
**S-Adenosylmethionine**  
   catecholamine O-methylation and, 12-13  
   histamine methylation and, 18  
**Adenylate cyclase**  
   adenosine receptor and, 104  
   dopamine and, 216, 353  
   dynorphin and, 133  
**Adenyl cyclase**  
   blood-brain barrier peptide receptors and, 29  
   brain capillary  
     activation of, 30  
 **$\beta$ -Adrenergic agonists**  
   erythropoietin production and, 111  
 **$\beta$ -Adrenergic blockers**  
   erythropoietin production and, 111  
   serotonin N-acetyltransferase and, 21  
 **$\alpha$ -Adrenergic receptor**  
   hunger and, 248  
 **$\beta$ -Adrenergic receptor**  
   melatonin synthesis and, 21  
   norepinephrine and, 21  
**Adrenochrome**  
   schizophreniclike hallucinations and, 12  
**Adrenocorticotropin**  
   neuromodulatory action of, 164  
   phenylethanolamine-N-methyltransferase and, 18  
   stress hormones and, 22  
**Agranulocytosis**  
   dapsone and, 239  
   suramin and, 420  
**AIDS**  
   See Acquired immune deficiency syndrome  
**AIDS-related complex**, 411  
**Albumin**  
   blood-brain barrier and, 30-31, 34-35
- Alinidine**  
   Purkinje fiber inward current and, 64  
**Alkylating agents**  
   erythropoietin production and, 111  
**Allergy**  
   drug cytotoxicity and, 372-75  
**N-Allylnormetazocine**  
   thermoregulation and, 433  
**Aluminum**  
   Alzheimer's disease and, 29  
**Alzheimer's disease**  
   bethanechol and, 32  
   neuritic plaque in  
     aluminum and, 29  
     amyloid peptide and, 30  
**Amenorrhea**  
   hyperprolactinemia and, 354  
**Amikicin**  
   nephrotoxicity of, 332  
**Amloride**  
   early afterdepolarizations and, 72  
**Amines**  
   biogenic  
     depression and, 16-17  
   protonatable  
     H,K-ATPase and, 281-82  
   sympathomimetic, 5-6  
   norepinephrine uptake and, 16  
**Amino acid receptors**  
   excitatory  
     allosteric modulation of, 462-65  
   gamma-Aminobutyric acid receptor  
     endogenous allosteric modulators of, 452-62  
**Aminoglycosides**  
   nephrotoxicity of, 332-35  
**Aminopeptidase**  
   brain capillary, 30  
**Aminopyrine**  
   N-demethylation of, 8  
   methylation products of, 5  
**Amitriptyline**  
   coexisting neurotransmitters and, 302  
**Ammonium antimony tungstate**  
   human immunodeficiency virus and, 421-22

- Amphetamine  
 anorectic effect of, 248, 257-59  
 behavioral effects of, 5  
 metabolism of, 6  
 microsomal enzymes and, 6-8  
 norepinephrine uptake and, 16  
 paranoid psychosis due to, 17  
 water intake and, 262
- Amphotericin B  
 human immunodeficiency virus and, 417-19  
 nephrotoxicity of, 335-36
- Amygdaloid kindling  
 dynorphin and, 129
- Amyloid peptide  
 Alzheimer's disease and, 30
- Analgesia  
 dynorphin and, 124-26
- Analgesics  
 nonaspirin  
 methemoglobinemia and, 3
- Anaphylaxis  
 drug allergy and, 368, 372
- Androgens  
 erythropoietin production and, 111
- Anemia  
 aplastic  
 chloramphenicol and, 83, 87, 89-90, 94  
 hemolytic  
 dapsone and, 239  
 drug allergy and, 368  
 enzyme deficiencies and, 205  
 suramin and, 420
- Anemia of chronic kidney failure  
 erythropoietin and, 113
- Anemonia sulcata*  
 toxin-II of, 147
- Angina pectoris  
 ketanserin and, 52
- Angiotensin  
 cerebrovasospasm and, 323  
 hypertension and, 41
- Angiotensin-converting enzyme  
 brain capillary, 30
- Angiotensin II  
 blood-brain barrier and, 30  
 cyclosporine A and, 338-39  
 erythropoietin production and, 111  
 neuromodulatory action of, 164
- Aniline  
 hydroxylation of, 8  
 methemoglobinemia and, 3
- Anorectics  
 endogenous, 247-63
- Anthopleura xanthogrammica*  
 anthopleurin-A of, 147
- Anthopleurin-A, 147
- Antiarrhythmics  
 sinus node and, 64-65
- Antidepressants  
 coexisting neurotransmitters and, 301-2  
 norepinephrine uptake and, 16
- Antiinflammatory agents  
 cerebrovasospasm and, 319-20
- Antioxidant defense systems, 189-206
- Antioxidants  
 anticarcinogenic properties of, 204  
 gentamicin-induced lipid peroxidation and, 334
- Antipsychotics  
 See Neuroleptics
- Antipyrene  
 body water measurement and, 4  
 metabolites of, 4
- Antithrombin III  
 cerebrovasospasm and, 323
- Apamin  
 palytoxin and, 146
- Aplastic anemia  
 chloramphenicol and, 83, 87, 89-90, 94
- Arachidonic acid  
 eicosanoid synthesis and, 106
- Arginine vasopressin  
 neuromodulatory action of, 164
- Aromatic amino acid decarboxylase  
 L-DOPA and, 223
- Arrhythmogenesis  
 abnormal automaticity in, 68-75
- Arthritis  
 drug allergy and, 374
- Ascorbate  
 host antioxidant defense and, 195
- Ascorbic acid  
 drug metabolism and, 5
- Aspartame  
 hyperphenylalaninemia and, 28
- Aspirin  
 nephrotoxicity of, 342
- Asthma  
 drug allergy and, 368, 372
- Astroglial cells  
 benzodiazepine recognition sites in, 458
- Atherosclerosis  
 hypercholesterolemia and, 47  
 serotonin and, 46-47
- ATP  
 See Adenosine triphosphate
- Atriopeptin  
 brain capillary guanyl cyclase and, 30
- Atropine  
 coexisting neurotransmitters and, 301  
 gastric acidity and, 269-70
- Autonomic nervous system  
 neuromodulation of, 179-80
- Avarol  
 human immunodeficiency virus and, 416-17
- Avarone  
 human immunodeficiency virus and, 416-17
- Azidothymidine  
 human immunodeficiency virus and, 420-21
- B
- Bacillus subtilis*  
 chloramphenicol-resistant, 86
- Bacteroides fragilis*  
 chloramphenicol and, 84, 87
- Barbiturates  
 oxidation of, 8
- Batrachotoxin  
 sodium channel and, 143
- Benzimidazoles  
 substituted  
 H,K-ATPase and, 274-81
- Benzodiazepine recognition sites  
 endogenous ligands for, 452-62
- Benzodiazepines  
 tolerance to, 461
- Benzpyrene  
 glucuronide conjugation and, 11
- Beta-agonists  
 Purkinje fiber inward current and, 64
- Bethanechol  
 Alzheimer's disease and, 32
- Bilirubin  
 host antioxidant defense and, 197-98  
 metabolism of  
 glucuronic acid conjugation and, 11
- Biogenic amines  
 depression and, 16-17
- Bismuth  
 duodenal ulcer and, 270
- Blood-brain barrier, 25-35
- catecholamines and, 16
- cell biology of, 26

- dopamine antagonists and, 352  
 drug delivery across, 32-35  
 fluorodopa and, 224  
 glial induction model of, 26  
 neuroleptics and, 220  
 transport across  
   carrier-mediated, 27-29  
   plasma-mediated, 30-32  
   receptor-mediated, 29-30  
 tritium-labeled epinephrine and, 14
- Blood pressure  
 dynorphin and, 126  
 neuromodulation of, 165, 179
- B lymphocytes  
 immunogens and, 370-71
- Body temperature  
 dynorphin and, 127  
 neuroregulation of, 165, 179, 431-32  
 opioid peptides and, 429-44  
   endogenous, 439-41  
   exogenous, 432-39
- Body water  
 measurement of  
   antipyrine and, 4
- Bombesin  
 anorectic effect of, 249-50  
 neuromodulatory action of, 164
- Bone marrow suppression  
 azidothymidine and, 421  
 chloramphenicol and, 87-89  
 thiamphenicol and, 88
- Bradykinin  
 angiotensin-converting enzyme and, 30  
 endothelium and, 45  
 vascular smooth muscle and, 391
- Brain  
 dynorphin and, 124-25  
 See also Blood-brain barrier
- Brain tumor  
 blood-brain barrier of, 26
- Brevetoxins, 141-43
- Bronchitis  
 tobacco smoke and, 201
- Bupivacaine  
 blood-brain barrier and, 31
- Burst forming unit erythroid colony cell  
 erythropoietin and, 110
- Buthus eupeus*  
 toxins of, 147-48
- Butoxamine  
 erythropoietin production and, 112
- Butyrophenones  
 antipsychotic potency of, 347
- C**
- Caerulein  
 anorectic effect of, 249
- Caeruloplasmin  
 Wilson's disease and, 206
- Caffeine  
 physiologic disposition of, 5
- Calcitonin  
 anorectic effect of, 259-63  
 water intake and, 262
- Calcitonin gene related peptide  
 neuromodulatory action of, 164
- Calcium  
 erythropoietin production and, 106-8  
 prolactin release and, 353
- Calcium channel agonists  
 renin secretion and, 107
- Calcium channel antagonists  
 cerebrovasospasm and, 320-21
- Calcium channels  
 vascular smooth muscle and, 393-96
- Calcium ionophore A23187  
 renin secretion and, 107
- Calmodulin  
 anorectic effect of, 249-50  
 prolactin release and, 353
- Cancer  
 host antioxidant defense systems and, 204
- Candididin  
 human immunodeficiency virus and, 418
- Capsaicin  
 neurotransmitter release and, 296
- Captopril  
 drug-carrier conjugates of, 369  
 vasoactive peptide metabolism and, 30
- Carboxymethyltransferase, 18
- Carcharias menisiorpha*  
 ciguatera of, 144
- Cardiac cellular electrophysiology, 61-75
- Cardiac glycosides  
 delayed afterdepolarizations and, 70  
 palytoxin and, 146-47
- Cardiac muscle  
 delayed rectifier in, 62-63  
 palytoxin and, 146  
 sea anemone toxins and, 148
- Cardiomyopathy  
 doxorubicin and, 199-200
- Cardiovascular system  
 dynorphin and, 126-27
- $\beta$ -Carotene  
 host antioxidant defense and, 197
- Catalase  
 host antioxidant defense and, 193
- Catalase deficiency  
 acatalasemia and, 206
- Catecholamines, 11-18  
 blood-brain barrier and, 16  
 coexistence with opioid peptides, 293  
 delayed afterdepolarizations and, 71  
 depression and, 17  
 early afterdepolarizations and, 72  
 feeding behavior and, 248  
 inactivation of, 13-14  
 metabolism of  
   pathways of, 13  
 O-methylation of, 12-13  
 release of  
   neuropeptides and, 166  
   selective uptake of, 14  
   synthesis of  
     tyrosine and, 223  
   toxicity of, 324
- Catechol-O-methyltransferase  
 tissue distribution of, 13
- Catechols  
 O-methylation of, 13
- Cathepsins  
 erythropoietin production and, 106
- Central nervous system  
 dynorphin and, 130-31
- Centruroides sculpturatus*  
 $\beta$ -toxins of, 143
- Cephaloglycin  
 nephrotoxicity of, 337
- Cephaloridine  
 nephrotoxicity of, 337
- Cephalosporins  
 nephrotoxicity of, 336-37
- Cephalothin  
 nephrotoxicity of, 337
- Cerebral blood supply  
 serotonin and, 53
- Cerebrovasospasm, 311-25  
 acute, reversible, 321-24  
 animal models of, 314  
 chronic  
   pathogenesis and  
   pathophysiology of, 312-14  
   subarachnoid hemorrhage and, 318-21  
 chronic, irreversible, 314-18  
 subarachnoid hemorrhage and, 53, 311

- Cesium  
early afterdepolarizations and, 72-75
- Chaulmoogra oil  
leprosy and, 233
- Chemotaxis  
mononuclear cell  
opioid peptides and, 130
- Chlamydia  
chloramphenicol and, 84
- Chloramphenicol, 83-96  
actions of, 87-88  
antimicrobial, 84-87  
aplastic anemia and, 83, 87, 89-90, 94  
bacterial resistance to, 86-87  
bone marrow suppression and, 87-89  
DNA synthesis and, 90-91  
erythroid sensitivity to, 89  
hematotoxicity of, 87  
metabolism of, 92-94  
structure of, 85  
toxicity of, 87-94  
nitroso-Chloramphenicol  
cytotoxicity of, 90  
DNA damage and, 91-92
- Chloramphenicol acetyltransferase  
chloramphenicol-resistant bacteria and, 86
- Chlorhexidine  
drug-carrier conjugates of, 372
- Chlorpromazine  
coexisting neurotransmitters and, 302  
growth hormone secretion and, 356
- Cholecystokinin  
anorectic effect of, 249-51  
neuromodulatory action of, 164
- Chronic cerebrovasospasm  
See Cerebrovasospasm
- Chymotrypsin  
erythropoietin and, 102
- Cigarette smoking  
See Tobacco smoke
- Ciguatera fish poisoning, 141, 143-44
- Ciguatera, 141, 143-45
- Cimetidine  
gastric acidity and, 270
- Cinanserin  
serotonin and, 48
- Circulatory system  
dynorphin and, 127
- Clofazimine  
leprosy and, 236-39
- Clozapine  
coexisting neurotransmitters and, 302
- Cobalt  
erythropoietin production and, 107, 111
- Cocaine  
norepinephrine uptake and, 16
- Computer simulation  
pacemaker potential and, 66-68
- Conjugation  
catecholamine metabolism and, 13  
drug metabolism and, 6
- Conotoxins, 150-55
- Conus geographus*  
neurotoxin of, 141  
venom of, 150
- Conus* spp.  
toxins of, 150-55
- Copper  
host antioxidant defense and, 196
- Copper superoxide dismutase, 192-93
- Coronary artery spasm  
ischemic heart disease and, 36
- Coronary artery tree  
serotonin and, 50-53
- Corticotropin releasing factor  
neuromodulatory action of, 164
- Corticotropin releasing hormone  
anorectic effect of, 250
- Ctenochaetus striatus*  
maitotoxin of, 144
- Cyclic AMP  
dopamine and, 216  
erythropoietin production and, 103-4  
melatonin synthesis and, 21
- Cyclic GMP  
melatonin synthesis and, 21
- Cyclic nucleotides  
erythropoietin production and, 111
- Cyclosporine  
human immunodeficiency virus and, 422-23
- Cyclosporine A  
nephrotoxicity of, 338-40
- Cytochrome P-450  
reactive oxygen metabolites and, 190
- Cytochrome P-450 monooxygenases, 8
- Cytotoxicity  
drug  
allergic mechanisms of, 372-75
- D
- Dapsone  
leprosy and, 237-39  
side effects of, 239
- Dapsone syndrome, 239
- Dazoxiben  
ischemic heart disease and, 52
- Deamination  
catecholamine metabolism and, 13  
drug metabolism and, 6
- Demethylation  
drug metabolism and, 6
- Deoxypentolate  
anorectic effect of, 250
- Deoxytetrone  
anorectic effect of, 250
- Depression  
catecholamine hypothesis of, 17
- Dermatitis  
drug allergy and, 368
- Dexamethasone  
phenylethanolamine-N methyltransferase and, 18
- Diacylglycerol  
erythropoietin production and, 105, 107-8
- Diazepam  
benzodiazepine recognition sites and, 454
- Dicoumerol  
measurement in plasma, 5
- 2',3'-Dideoxycytidine  
human immunodeficiency virus and, 421
- Diethylmaleate  
doxorubicin cytotoxicity and, 199
- Dihydropyridine  
vascular smooth muscle and, 395
- Diisocyanates  
drug-carrier conjugates of, 369
- Diisothiocyanates  
drug-carrier conjugates of, 369
- Diltiazem  
cerebrovasospasm and, 320-21
- N,N-Dimethyltryptamine, 18
- Diquat  
cytotoxicity of, 200-1  
reactive oxygen metabolites and, 191
- Diuretics  
mercurial  
erythropoietin production and, 111

- DNA repair mechanisms  
  host antioxidant defense and, 198-99
- DNA synthesis  
  chloramphenicol and, 90-91
- DNA transcription  
  human immunodeficiency virus and, 423-24
- Domperidone  
  prolactin secretion and, 352
- L-DOPA  
  aromatic amino acid decarboxylase and, 223  
  blood-brain barrier and, 34  
  growth hormone secretion and, 355  
  O-methylation of, 13
- $\alpha$ -methyl-DOPA  
  blood-brain barrier and, 34
- Dopamine  
  adenylate cyclase and, 216, 353  
  endogenous  
    measurement of, 10  
    growth hormone secretion and, 354-55  
    maitotoxin and, 144  
    measurement in brain nuclei, 18  
    O-methylation of, 13  
    Parkinson's disease and, 225  
    prolactin secretion and, 350  
    thyrotropin secretion and, 356-57
- Dopamine agonists  
  hyperprolactinemia and, 351
- Dopamine- $\beta$ -hydroxylase  
  intraneural storage of, 15  
  tyrosine hydroxylase and, 17
- Dopamine receptor  
  biochemistry of, 216-23  
  growth hormone secretion and, 355-56  
  neuroleptics and, 216-17, 347-50  
  prolactin secretion and, 351-52  
  thyrotropin secretion and, 358
- Down's syndrome  
  dopamine  $\beta$ -hydroxylase and, 15
- Doxorubicin  
  cardiotoxicity of, 199-200  
  reactive oxygen metabolites and, 191
- Drug cytotoxicity  
  allergic mechanisms of, 372-75
- Drug hypersensitivity, 367-82
- Drug metabolism  
  ascorbic acid and, 5  
  pathways of, 6
- Drug-metabolizing enzymes, 6-10
- Drug nephrotoxicity, 331-42
- Duodenal ulcer disease  
  drugs for, 270
- Dynorphin, 123-33  
  action of  
    molecular basis of, 13133  
    thermoregulation and, 440  
  in vitro effects of, 130-31  
  in vivo effects of, 124-30
- Dynorphin receptor  
  second messengers and, 132-33
- Dysautonomia  
  familial  
    dopamine  $\beta$ -hydroxylase and, 15
- E
- Eburnetoxin, 150, 154
- Eglin C  
  antiemphysemic activity of, 201
- Eicosanoids  
  erythropoietin production and, 106
- Emphysema  
   $\alpha$ -1-antitrypsin deficiency and, 206  
  tobacco smoke and, 201
- Endoproteinase lysine-C  
  erythropoietin and, 102
- $\beta$ -Endorphin  
  anticonvulsant effects of, 129  
  blood-brain barrier and, 34-35  
  blood pressure/heart rate and, 126  
  stress and, 129  
  thermoregulation and, 440
- $\beta$ -Endorphin receptor, 123
- Endothelium  
  platelet aggregation and, 44-45  
  serotonin and, 44-46
- Met-Enkephalinamide  
  thermoregulation and, 440
- Enkephalin receptor, 123
- Enkephalins  
  brain capillary endopeptidase and, 30
- Enterococci  
  chloramphenicol and, 84
- Enterogastrone  
  anorectic effect of, 250
- Enzymes  
  drug-metabolizing, 6-10  
  host antioxidant defense and, 192-94
- Ephedrine  
  behavioral effects of, 5
- metabolism of, 6  
  microsomal enzymes and, 7-8  
  SKF525A and, 8
- Epinephrine  
  cerebrovasospasm and, 323  
  endogenous  
    measurement of, 10  
  metabolism of, 12-14  
  schizophrenia and, 12, 14  
  O-methyl metabolite of, 13  
  thermoregulation and, 433
- Epizanthus arenaceus*  
  zoanthoxanthins of, 145
- Ergonovine  
  ischemic heart disease and, 36
- Erythema nodosum leprosum, 233
- thalidomide and, 240
- Erythroid colony forming unit  
  erythropoietin and, 110
- Erythromycin  
  leprosy and, 233, 236
- Erythropoietin, 101-15  
  assay of, 102-3  
  pharmacokinetics of, 112-13  
  physicochemical characterization of, 102  
  production of  
    extrarenal, 109-10  
    pharmacologic agents and, 111-12  
    renal, 103-6, 108-9  
  secretion of  
    calcium and, 106-8  
    sites of action of, 110-11  
    therapeutic uses of, 113-14
- Escherichia coli*  
  chloramphenicol-resistant, 86
- Estradiol  
  narcotic demethylation and, 9
- Estrogens  
  erythropoietin production and, 111
- Ethionamide  
  leprosy and, 240
- Ethylene oxide  
  drug-carrier conjugates of, 369
- Ethylketazocine  
  thermoregulation and, 433
- Exocytosis  
  catecholamine discharge and, 15
- F
- Familial dysautonomia  
  dopamine  $\beta$ -hydroxylase and, 15

- Famotidine  
gastric acidity and, 270
- Feeding behavior  
dynorphin and, 127-28  
monoamines and, 247-48  
opioid peptides and, 258-59
- Fenfluramine  
anorectic effect of, 248, 257-59
- Ferritin  
host antioxidant defense and, 196
- Ferrochelatase  
erythroid sensitivity to chloramphenicol and, 89
- Fibrin  
cerebrovasospasm and, 323
- Fibrinogen  
cerebrovasospasm and, 323
- Flumazenil  
benzodiazepine recognition sites and, 454
- Fluorodopa  
blood-brain barrier and, 224
- FMRFamide  
neuromodulatory action of, 164
- Food deprivation  
hunger drive and, 252
- Formaldehyde  
drug-carrier conjugates of, 369
- Foscarnet  
human immunodeficiency virus and, 419-20
- Free fatty acid metabolites  
anorectic effect of, 250
- Free fatty acids  
blood-brain barrier and, 30-31
- G
- Galactose  
satiety and, 254
- Galanin  
neuromodulatory action of, 164
- Galanin receptor  
acetylcholine and, 300
- Gambierdiscus toxicus*  
ciguatoxin of, 144
- Gastric acid secretion  
inhibition of  
omeprazole and, 274
- Gastric ulcer disease  
drugs for, 270
- Gastrin  
gastric effects of, 270
- Gastroesophageal reflux disease  
drugs for, 270
- Gentamicin  
nephrotoxicity of, 332-34
- Geographutoxin, 150
- Glial cells  
DBI-like immunoreactivity in, 457  
neuropeptides and, 178
- Globulins  
blood-brain barrier and, 30
- Glomerular filtration rate  
gentamicin therapy and, 334
- Glomerulonephritis  
drug allergy and, 374
- Glucagon  
anorectic effect of, 250
- Glucose  
blood-brain barrier and, 27  
satiety and, 253-54
- Glucose-6-phosphate  
amphetamine metabolism and, 7
- Glucose-6-phosphate dehydrogenase deficiency  
dapsone and, 239  
hemolytic anemia and, 205
- Glucosulfone sodium  
leprosy and, 233
- Glucuronic acid conjugation  
bilirubin metabolism and, 11
- Glucuronides  
phenolic  
uridine diphosphate  
glucuronic acid and, 10  
synthesis of  
congenital jaundice and, 11
- Glutathione  
host antioxidant defense and, 194-95
- Glutathione peroxidase  
selenium-dependent  
host antioxidant defense and, 193-94
- Glutathione reductase deficiency  
hemolytic anemia and, 205
- Glutathione transferase  
host antioxidant defense and, 196-97
- Goniopora* toxins, 149-55
- Granulocyte colony stimulating factor  
burst forming unit erythroid colony cell and, 110
- Granulocytopenia  
drug allergy and, 368
- Growth hormone  
erythropoietin production and, 111  
secretion of  
neuroleptics and, 354-56
- Guanyl cyclase  
blood-brain barrier peptide receptors and, 29
- brain capillary  
activation of, 30
- Gymnodinium breve*  
See *Ptychodiscus brevis*
- Gymnothorax javanicus*  
ciguatoxin of, 144
- H
- Haloperidol  
coexisting neurotransmitters and, 302
- Halothane hepatitis, 378-80
- Hansen's disease  
See Leprosy
- Heart rate  
dynorphin and, 126
- Hematopoietic system  
chloramphenicol and, 87
- Hemoglobin  
cerebrovasospasm and, 323  
host antioxidant defense and, 194  
reactive oxygen metabolites and, 190
- Hemolysis  
palytoxin and, 146
- Hemolytic anemia  
dapsone and, 239  
drug allergy and, 368  
enzyme deficiencies and, 205
- Hemophilus influenzae*  
ampicillin-resistant  
chloramphenicol and, 83-84  
chloramphenicol-resistant, 86
- Hepatitis  
drug allergy and, 368  
halothane, 378-80
- Hepatocytes  
lipid peroxidation in  
bipyridilium herbicides and, 192  
menadione and, 191
- Heroin addicts  
acquired immune deficiency syndrome and, 481-83
- Hexabarbitol  
metabolism of  
SKF525A and, 8  
sleeping time of, 8
- Hisamine  
cerebrovasospasm and, 320  
dynorphin and, 129  
enzymatic N-methylation of, 18  
gastric acidity and, 270  
measurement in brain nuclei, 18  
vascular smooth muscle and, 391
- Histamine N-methyltransferase, 18

- H,K-ATPase, 270-74  
selective inhibition of, 274-82
- Hormones  
blood-brain barrier and, 27-31  
dynorphin and, 128-29  
release of  
peptides and, 165  
transduction mechanisms of, 22
- Host antioxidant defense systems, 192-99
- HPA-23  
human immunodeficiency virus and, 421-22
- Human immunodeficiency virus, 411-13
- Hunger  
 $\alpha$ -adrenergic receptor and, 248
- Hunger drive  
food deprivation and, 252
- Hydroperoxide  
cerebrovasospasm and, 323
- 5-Hydroxytryptamine  
See Serotonin
- 4-Hydroxyantipyrine  
antipyrine metabolism and, 4
- 6-Hydroxydopamine  
tyrosine hydroxylase and, 17
- Hydroxyindole-O-methyltransferase, 18-19
- Hydroxylation  
drug metabolism and, 6
- Hyperaminoacidemia  
blood-brain barrier and, 28
- Hypercholesterolemia  
atherosclerosis and, 47
- Hypergastrinemia  
Zollinger-Ellison syndrome and, 269, 281
- Hyperglycemia  
blood-brain barrier glucose transporter and, 27
- Hyperkalemia  
cyclosporine A and, 339
- Hyperphenylalaninemia  
blood-brain barrier and, 28
- Hyperprolactinemia  
dopamine agonists and, 351  
effects of, 353-54
- Hypersensitivity  
drug, 367-82
- Hypertension  
angiotensin and, 41  
dopamine  $\beta$ -hydroxylase and, 15  
vascular smooth muscle membrane in, 389-404
- Hyperthermia  
drug-induced, 433-39
- Hypocholesterolemia  
serotonin and, 47
- Hypothalamus  
neuroleptics and, 353
- Hypothermia  
drug-induced, 433-39
- Hypothyroidism  
bradycardia in  
triiodothyronine and, 28-29
- I
- Ibuprofen  
cerebrovasospasm and, 319-20
- Imipramine  
coexisting neurotransmitters and, 302
- Imipramine recognition sites  
endogenous ligands for, 465-69
- Immune complex disease  
drug hypersensitivity and, 374
- Immune response  
drug-induced, 368-70
- Immune system  
endogenous opioids and, 130
- Immunogens  
B lymphocytes and, 370-71  
T lymphocytes and, 371-72
- Immunoglobulins  
drug hypersensitivity and, 372
- Immunomodulation  
dynorphin and, 130
- Inflammation  
dynorphin and, 129  
host antioxidant defense systems and, 204-5
- Inositol triphosphate  
erythropoietin production and, 104
- Insulin  
anorectic effect of, 250  
blood-brain barrier and, 29  
neuromodulatory action of, 164
- Interleukin 3  
burst forming unit erythroid colony cell and, 110
- Ion channels  
regulation of  
peptides and, 176-77
- Iron superoxide dismutase, 192
- Ischemic heart disease  
coronary artery spasm and, 36
- Isocitric acid  
amphetamine metabolism and, 7
- 1-Isoproterenol  
 $\beta$ -adrenergic receptor and, 21
- J
- Jaundice  
congenital  
glucuronide synthesis and, 11
- K
- Ketanserin  
angina pectoris and, 52  
cerebral artery spasm and, 53  
platelet activation and, 52  
platelet aggregation and, 43-44  
Raynaud's phenomena and, 54  
renal vasoconstriction and, 55  
serotonin receptor and, 42  
vasoconstriction and, 51  
Ketanserin recognition sites  
endogenous ligands for, 465-69
- Kidney  
erythropoietin production in, 103-6, 108-19  
serotonin and, 54-55
- Kidney failure  
anemia of  
erythropoietin and, 113  
gentamicin-induced, 333-34
- L
- Lactoferrin  
host antioxidant defense and, 196
- Lactoperoxidase  
host antioxidant defense and, 194
- Lanthanum  
maitotoxin and, 144
- Leiurus quinquestriatus*  
neurotoxins of, 143, 147-48
- Lepra reactions, 232
- Leprosy  
chemotherapy of, 231-42  
lepromatous, 232  
paucibacillary, 237  
tuberculoid, 232  
type 2 reactions in, 233
- Lidocaine  
blood-brain barrier and, 33  
cardiac delayed rectifier and, 63  
Purkinje fiber inward current and, 64
- Light  
melatonin synthesis and, 20
- Liposomes  
drug delivery and, 33
- Liver  
erythropoietin production in, 109-10

- LSD  
fluorometric assay for, 10  
metabolism of, 12
- Lung disease  
tobacco smoke and, 201-2
- Lupus erythematosus-like syndrome  
drug allergy and, 368, 374
- Luteinizing hormone  
opioids and, 128
- Luteinizing hormone releasing hormone  
neuromodulatory action of, 164
- Lutjanus bohar*  
ciguatera of, 144
- Lymphocytes  
opioid receptors on, 130
- Lymphokines  
opioid peptides and, 130
- M
- Macrophage colony stimulating factor  
burst forming unit erythroid colony cell and, 110
- Ma huang*, 6, 478
- Maitotoxin, 141, 143-45
- Manganese superoxide dismutase, 192
- Mannose  
satiating and, 254
- Marine neurotoxins, 141-56
- Materia medica*, 477-78
- Mazindol  
anorectic effect of, 248, 258
- Melanin inhibiting hormone  
neuromodulatory action of, 164
- Melatonin  
biosynthetic pathway of, 19-22  
gonad inhibition and, 20  
hydroxyindole O-methyltransferase and, 18  
synthesis of, 20-21  
light and, 20
- Melphalan  
See Phenylalanine mustard
- Membrane potential  
peptides and, 176
- Menadione  
reactive oxygen metabolites and, 191
- Meningioma  
blood-brain barrier of, 26
- Meningitis  
chloramphenicol and, 84
- Meperidine  
N-demethylation of, 8-9
- Mescaline  
behavioral effects of, 5
- Metabolic alkalosis  
cyclosporine A and, 339
- Metal ion chelators  
hereditary deficiencies in, 206  
host antioxidant defense and, 196
- Metanephrine  
formation of, 13
- Methadone  
N-demethylation of, 8-9  
Methemoglobinemia  
nonaspirin analgesics and, 3
- Methionine  
epinephrine metabolism and, 12-13
- Methiothepin  
coronary artery tree and, 51
- Methylamphetamine  
metabolism of, 6
- O-Methylation  
catecholamine metabolism and, 13
- 3-Methylcholanthrene  
glucuronide conjugation and, 11
- $\alpha$ -Methylparatyrosine  
blood-brain barrier and, 34
- Methylprednisolone  
cerebrovasospasm and, 319-20
- N-Methyltransferase, 18
- Methyltransferases, 18
- Metronidazole  
mutagenic activity of, 92
- Microsomes  
drug-metabolizing enzymes of, 6-10
- Mineralocorticoids  
vascular smooth muscle and, 401
- Monoamine oxidase  
epinephrine metabolism and, 12
- Monoamine oxidase inhibitors  
antidepressant actions of, 16
- Monoamines  
feeding behavior and, 247-48
- Morphiceptin  
blood pressure/heart rate and, 126
- Morphine  
analgesic effects of  
dynorphin and, 124  
anticonvulsant effects of, 129  
N-demethylation of, 8-9  
enzymatic conjugation of, 10-11  
hypothermic effects of, 127  
stroke and, 129  
thermoregulation and, 432-39
- Motor system  
dynorphin and, 126
- Mucopolypeptides  
host antioxidant defense and, 196
- Mycobacterium leprae*  
leprosy and, 231-33
- Mycoplasmas  
chloramphenicol and, 84
- Myeloperoxidase  
host antioxidant defense and, 194
- Myocytes  
delayed rectifier in, 62-63
- N
- NADPH-cytochrome P-450 reductase  
reactive oxygen metabolites and, 190
- NADPH:quinone oxidoreductase  
host antioxidant defense and, 194
- Naloxone  
dynorphin and, 126  
feeding behavior and, 127  
stroke and, 129
- Narcotics  
N-demethylation of  
sex difference in, 8-9  
enzymatic conjugation of, 11  
metabolism of, 12  
tolerance to  
mechanism of, 9
- Natural killer cells  
opioid peptides and, 130
- Neisseria meningitidis*  
chloramphenicol and, 84
- Neomycin  
nephrotoxicity of, 333
- Nephritis  
drug allergy and, 368
- Nephrotoxicity  
drug, 331-42
- Nerve fibers  
palytoxin and, 146
- Netilmicin  
nephrotoxicity of, 332
- Neuroblastoma  
torsion dystonia  
dopamine  $\beta$ -hydroxylase and, 15
- Neurokinin A  
serotonergic neurons and, 288
- Neuroleptics  
blood-brain barrier and, 220  
coexisting neurotransmitters and, 302  
dopamine receptor and, 216-17, 347-50  
growth hormone secretion and, 354-56



- hyperprolactinemia and, 351-52  
neuroendocrine function and, 347-59  
prolactin secretion and, 350-54  
thyrotropin secretion and, 356-58
- Neuromodulation  
peptide, 163-80  
diversity of, 168-70  
mechanisms for, 174-78  
neurotransmitters and, 167-68  
specificity of, 165-67
- Neuromuscular junction  
sea anemone toxins and, 147
- Neurons  
DBI-like immunoreactivity in, 457  
dynorphin and, 130-31  
sea anemone toxins and, 148
- Neuropeptides  
coexisting  
biosynthesis of, 291-92  
colocalization with  
neurotransmitters, 167-68  
Neuropeptide Y  
food and water intake and, 250-51  
neuromodulatory action of, 164
- Neurotensin  
anorectic effect of, 250  
neuromodulatory action of, 164
- Neurotoxins  
marine, 141-56
- Neurotransmitters  
biochemistry of  
in vivo assessment of, 213-26  
coexisting, 18  
biosynthesis of, 289-93  
chronic drug treatment and, 301-2  
examples of, 288-89  
release of, 293-301  
storage and transport of, 292-93  
synaptic interactions of, 302-4  
types of, 287-88  
colocalization with  
neuropeptides, 167-68  
inactivation of, 13-14  
release of  
peptides and, 165  
transduction mechanisms of, 22
- Neutropenia  
azidothymidine and, 421
- Nickel  
erythropoietin production and, 111
- Nicotinamide  
benzodiazepine recognition sites and, 455
- Nicotine  
thermoregulation and, 433
- Nifedipine  
cerebrovasospasm and, 316
- Nimodipine  
palytoxin and, 146
- Nisoldipine  
cardiac delayed rectifier and, 63
- Norepinephrine  
cerebrovasospasm and, 320, 323  
endogenous  
measurement of, 10  
intraneural storage of, 15  
maitotoxin and, 144  
measurement in brain nuclei, 18  
melatonin synthesis and, 20-21  
O-methylation of, 13  
 $\beta$ -receptor and, 21  
selective uptake of, 14  
thermoregulation and, 431-32  
toxicity of, 324  
uptake of  
drugs blocking, 16
- Normetanephrine, 13
- O
- Obesity  
pharmacotherapy for, 247-48
- Octopamine  
localization of, 18
- Omeprazole  
gastric acid secretion and, 274  
mechanism of action of, 275-79  
pharmacokinetics of, 275  
toxicology of, 279-80
- Opioid peptides  
body temperature and, 429-44  
coexistence with catecholamines, 293  
endogenous  
classes of, 123  
immune system and, 130  
thermoregulation and, 439-41  
exogenous  
thermoregulation and, 432-39  
feeding behavior and, 258-59  
hormones and, 128  
neuromodulatory action of, 164  
stroke and, 129
- Opioid receptors  
classes of, 123, 131-32  
dynorphin and, 130-31
- Ouabain  
palytoxin and, 146-47  
renin secretion and, 107
- Oxidation  
catecholamine metabolism and, 13
- Oxidoreductases  
protein-specific  
host antioxidant defense and, 198
- Oxygen  
high concentrations of  
biologic systems and, 203
- Oxytocin  
dynorphin and, 128  
neuromodulatory action of, 164
- P
- Pacemaker potential  
Purkinje fibers and, 63-68
- Palythoa* spp.  
palytoxin of, 145-46
- Palytoxin, 141, 145-47
- Pancreatic polypeptide  
anorectic effect of, 250
- Pancytopenia  
chloramphenicol and, 87
- Papaverine  
cerebrovasospasm and, 316
- Paragracine, 145
- Paraquat  
cytotoxicity of, 200-1  
reactive oxygen metabolites and, 191
- Parathyroid hormone  
brain capillary adenylyl cyclase and, 30
- Parazoanthus axinellae*  
zoanthoxanthins of, 145
- Parazoanthus gracilis*  
paragracine of, 145
- Parkinson's disease  
dopamine depletion in, 225  
experimental, 33
- Penicillamine  
drug-carrier conjugates of, 369  
Wilson's disease and, 206
- D-Penicillamine  
human immunodeficiency virus and, 415
- Penicillin  
drug-carrier conjugates of, 369

- Pentazocine  
  thermoregulation and, 433
- Pentyleneetetrazol  
  convulsant effects of  
    opioids and, 129
- Peptic ulcer disease  
  drugs for, 270
- Peptides  
  chimeric  
    blood-brain barrier and, 34  
  endogenous  
    anorectic effect of, 249-51  
    neuromodulation by, 163-80  
    diversity of, 168-70  
    mechanisms for, 174-78  
    neurotransmitters and, 167-68  
    specificity of, 165-67  
  See also Opioid peptides
- Peroxidases  
  host antioxidant defense and, 194
- Phenacetin  
  metabolites of, 4  
  methemoglobinemia and, 3  
  nephrotoxicity of, 340-42
- Phencyclidine binding sites  
  endogenous ligands for, 462-65
- p*-Phenetidine  
  phenacetin metabolism and, 4
- Phenothiazines  
  antipsychotic potency of, 347
- Phenylalanine mustard  
  blood-brain barrier and, 34
- Phenylenediamine  
  gentamicin-induced lipid peroxidation and, 334
- Phenylephrine  
  coronary artery vasoconstriction and, 52
- Phenylethanolamine  
  localization of, 18
- $\beta$ -Phenylethanolamine derivatives  
  sympathetic nervous system and, 5
- Phenylethanolamine-N methyltransferase  
  localization of, 18
- Phenylethylamine  
  localization of, 18
- Phosphogluconate acid  
  amphetamine metabolism and, 7
- Phosphoinositides  
  metabolism of  
    vascular smooth muscle and, 396-97
- Phospholipids  
  methylation of  
    signal transduction and, 22
- Phthalic anhydrides  
  drug-carrier conjugates of, 369
- Pineal gland, 19-22
- Pirenzepine  
  gastric acidity and, 269-70
- Plasmin  
  cerebrovasospasm and, 323
- Platelet aggregation  
  endothelium and, 44-45  
  ketanserin and, 43-44  
  serotonin and, 45
- Pneumonitis  
  drug allergy and, 368
- Poikilothermia, 431
- Polymethyl-C  
  human immunodeficiency virus and, 419
- Porphyris  
  benzodiazepine recognition sites and, 455
- Positron emission tomography  
  neurotransmitter biochemistry and, 214-26
- Potassium  
  cerebrovasospasm and, 320, 323  
  renin secretion and, 107
- Potassium channel blockers  
  palytoxin and, 146
- Prazosin  
  ischemic heart disease and, 52
- Prodynorphin, 123
- Progesterone  
  nasal administration of  
    cerebrospinal fluid and, 32-33
- Prolactin  
  erythropoietin production and, 111  
  neuromodulatory action of, 164  
  opioids and, 128  
  secretion of  
    neuroleptics and, 350-54
- Promin  
  See Glucosulfone sodium
- Prooxidants  
  natural, 202-3  
  xenobiotic, 199-202
- Propranolol  
  blood-brain barrier and, 31, 33  
  erythropoietin production and, 112  
  ischemic heart disease and, 52
- Prostaglandins  
  anorectic effect of, 250  
  cerebrovasospasm and, 323  
  cyclosporine A and, 339  
  duodenal ulcer and, 270  
  erythropoietin production and, 111
- Prostaglandin synthetase  
  host antioxidant defense and, 194
- Protein kinase  
  cyclosporine A and, 338  
  melatonin synthesis and, 21
- Protein kinase A  
  erythropoietin production and, 103-4
- Protein kinase C  
  vascular smooth muscle and, 396
- Proteinurea  
  suramin and, 420
- Prothionamide  
  leprosy and, 240
- Pseudomonas aeruginosa*  
  chloramphenicol-resistant, 86
- Pseudopregnancy  
  neuropeptides and, 165
- Psychotropics  
  high-affinity recognition sites of, 451-70
- Psychodiscus brevis*  
  toxins of, 142-43
- Pulmonary edema  
  interstitial  
    doxorubicin and, 200
- Purines  
  benzodiazepine recognition sites and, 455
- Purkinje fibers  
  action potential plateau in  
    tetrodotoxin and, 61-62  
  delayed rectifier in, 62-63  
  pacemaker potential of, 63-68
- ## Q
- Quinidine  
  cardiac delayed rectifier and, 63  
  early afterdepolarizations and, 72-75  
  Purkinje fiber inward current and, 64
- Quinine  
  palytoxin and, 146
- Quinones  
  reactive oxygen metabolites and, 191
- ## R
- Ranitidine  
  gastric acidity and, 270
- Raynaud's phenomenon  
  scleroderma and, 53-54  
  serotonin and, 53-54

- Reactive oxygen metabolites, 190-92
  - cancer and, 204
- Red tide, 142
- Renin
  - secretion of, 107
- Reserpine
  - depression and, 16-17
  - neurotransmitter release and, 295-96
  - serotonin N-acetyltransferase and, 21
  - tyrosine hydroxylase and, 17
- Respiration
  - dynorphin and, 127
- Reverse transcription
  - human immunodeficiency virus and, 419-23
- Rhamnose
  - satiating and, 253-54
- Ribavirin
  - human immunodeficiency virus and, 421
- Rickettsia
  - chloramphenicol and, 84
- Rifampin
  - leprosy and, 237-39
- Rifamycin S-V
  - leprosy and, 239
- RNA transcription
  - human immunodeficiency virus and, 423-24
- S
- Salmonella
  - chloramphenicol and, 84
- Satiating
  - anorectic effect of, 253-63
- Saxitoxin, 141
- Scaritoxin, 144
- Scarus gibbus*
  - scaritoxin of, 144
- SCH 28080
  - H,K-ATPase and, 281-82
- Schizophrenia, 216, 347
  - epinephrine metabolism and, 12, 14
- Scleroderma
  - Raynaud's phenomena and, 53-54
- Scomberomorus commersoni*
  - ciguatera poisoning and, 143
- Scorpion toxins, 143, 147-48
- Sea anemone toxins, 141, 147-49
- Second messengers
  - dynorphin receptor and, 132-33
  - peptides and, 175-76
- Seizures
  - opioid peptides and, 129-30
- Selenium-dependent glutathione peroxidase, 193-94
- Serotonergic transmission
  - modulation of, 465-69
- Serotonin, 41-55
  - arterial collateral blood vessels and, 47-50
  - atherosclerosis and, 46-47
  - cerebral blood supply and, 53
  - cerebrovasospasm and, 320, 323
  - cinanserin and, 48
  - coronary artery tree and, 50-53
  - coronary artery vasoconstriction and, 52
  - digital circulation and, 53-54
  - endogenous
    - measurement of, 10
  - endothelium and, 44-46
  - erythropoietin production and, 111
  - hypertension and, 42-43
  - hypocholesterolemia and, 47
  - measurement in brain nuclei, 18
  - metabolism of, 19
  - platelet aggregation and, 45
  - platelet-vessel wall interactions and, 43-44
  - Raynaud's phenomena and, 53-54
  - renal circulation and, 54-55
  - thermoregulation and, 431-32
- Serotonin N-acetyltransferase
  - $\beta$ -receptor and, 21
- Serotonin receptor
  - ketanserin and, 42
- Serotonin rhythm
  - circadian, 20
- Serum sickness
  - drug allergy and, 368, 374
- Sexual behavior
  - hyperprolactinemia and, 354
- Sinus node
  - antiarrhythmics and, 64-65
- Skeletal muscle
  - palytoxin and, 146
- SKF525A
  - drug metabolism and, 8
- Smooth muscle
  - palytoxin and, 146
  - vascular
    - calcium channels in, 393-96
    - calcium extrusion pump and, 403
    - cell membrane receptors of, 393
    - hypertension and, 389-404
    - phosphoinositide metabolism and, 396-97
- sensitivity of, 391-93
  - sodium-calcium exchanger and, 397-98
  - sodium-hydrogen exchanger and, 402-3
  - sodium-potassium pump and, 398-402
- Sodium channel
  - brevetoxin and, 142-43
  - ciguatera and, 144
  - sea anemone toxins and, 148-49
- Sodium current
  - tetrodotoxin-sensitive
    - Purkinje fibers and, 61-62
- Sodium-potassium pump
  - palytoxin and, 146
  - vascular smooth muscle and, 398-402
- Somatostatin
  - anorectic effect of, 250
  - brain capillary endopeptidase and, 30
  - neuromodulatory action of, 164
  - neurosecretion of
    - dopamine and, 355
  - prolactin secretion and, 353
- Spasmogens
  - cerebrovasospasm and, 323-24
  - toxicity of, 324
- Spectrofluorometry, 10
- Spinal cord
  - dynorphin and, 125-26
- Spinal reflexes
  - neuropeptides and, 165
- Steroid hormones
  - blood-brain barrier and, 30-31
- Streptococcus pneumoniae*
  - chloramphenicol and, 84
- Streptococcus viridans*
  - chloramphenicol and, 84
- Stress
  - dynorphin and, 129
  - $\beta$ -endorphin and, 129
- Striatum, 150, 154
- Stroke
  - opioid peptides and, 129
- Subarachnoid hemorrhage
  - cerebrovasospasm and, 53, 311
  - chronic cerebrovasospasm and, 318-21
- Substance P
  - dynorphin and, 129
  - endothelium and, 45
  - neuromodulatory action of, 164
  - serotonergic neurons and, 288

- Sucralfate  
   duodenal ulcer and, 270  
 Superoxide dismutase  
   antiinflammatory effects of, 205  
   host antioxidant defense and, 192-93  
 Suramin  
   human immunodeficiency virus and, 420  
 Sympathomimetic amines, 5-6  
   norepinephrine uptake and, 16  
 T  
 Taurine  
   host antioxidant defense and, 196  
 Tessulatoxin, 150, 154-55  
 Testosterone  
   erythropoietin production and, 111  
   narcotic demethylation and, 9  
 Tetraethylammonium  
   Purkinje fiber action potentials and, 73  
 Tetrodotoxin, 141  
   palytoxin and, 146  
   Purkinje fibers and, 61-62  
   sea anemone toxins and, 149  
 Thalidomide  
   leprosy and, 240  
 Thermoregulation, 430-32  
   opioid peptides and  
     endogenous, 439-41  
     exogenous, 432-39  
 Thiamphenicol, 83  
   actions of, 87-88  
   bone marrow suppression and, 88  
   DNA and, 90  
   structure of, 85  
 Thiorphan  
   thermoregulation and, 440  
 Thioxanthines  
   antipsychotic potency of, 347  
 Thrombin  
   cerebrovasospasm and, 323  
   toxicity of, 324  
 Thrombocytopenia  
   drug allergy and, 368  
 Thromboxane  
   cerebral blood supply and, 53  
   cerebrovasospasm and, 323  
 Thromboxane A<sub>2</sub>, 42  
   arterial collateral blood vessels and, 50  
   platelet-vessel wall interactions and, 43-44  
 Thromboxane B<sub>2</sub>  
   ischemic heart disease and, 52  
   Thromboxane synthetase  
     platelet activation and, 52  
   Thyroid hormones  
     blood-brain barrier and, 27-29  
   Thyrotropin  
     secretion of  
       neuroleptics and, 356-58  
   Thyrotropin releasing hormone  
     anorectic effect of, 250  
     neuromodulatory action of, 164  
     serotonergic neurons and, 288  
   Thyroxine  
     erythropoietin production and, 111  
 T lymphocytes  
   erythroid potentiating factor of, 110  
   human immunodeficiency virus and, 411-12  
   immunogens and, 371-72  
 Tobacco smoke  
   cytotoxicity of, 201-2  
 Tobramycin  
   nephrotoxicity of, 332-33  
 Tocopherols  
   host antioxidant defense and, 197  
 Torsion dystonia neuroblastoma  
   dopamine  $\beta$ -hydroxylase and, 15  
 Transcytosis  
   receptor-mediated  
     blood-brain barrier and, 29  
 Transferrin  
   blood-brain barrier and, 29  
   host antioxidant defense and, 196  
 Trauma  
   dynorphin and, 129-30  
 Trichloroacetic acid  
   satiety and, 253  
 Triiodothyronine  
   isomers of  
     biologic potency of, 28-29  
 Trypsin  
   erythropoietin and, 102  
 Tryptamine  
   localization of, 18  
 Tryptophan  
   melatonin synthesis and, 20  
 Tyramine  
   localization of, 18  
   norepinephrine uptake and, 16  
   3-methoxy Tyramine, 13  
 Tyrosine  
   catecholamine synthesis and, 223  
   Tyrosine hydroxylase  
     nerve firing and, 17  
 U  
 Uric acid  
   host antioxidant defense and, 195  
 Uridine diphosphate glucuronic acid  
   enzymatic synthesis of, 10  
 Urticaria  
   drug allergy and, 368, 372, 374  
 V  
 Vascular smooth muscle  
   calcium channels in, 393-96  
   calcium extrusion pump and, 403  
   cell membrane receptors of, 393  
   hypertension and, 389-404  
   phosphoinositide metabolism and, 396-97  
   sensitivity of, 391-93  
   sodium-calcium exchanger and, 397-98  
   sodium-hydrogen exchanger and, 402-3  
   sodium-potassium pump and, 398-402  
 Vasculitis  
   drug allergy and, 368, 374  
 Vasoactive intestinal peptide  
   anorectic effect of, 250  
   brain capillary adenylyl cyclase and, 30  
   coexistence with acetylcholine, 286  
   neuromodulatory action of, 164  
 Vasodilators  
   chronic, irreversible cerebrovasospasm and, 315-16  
 Vasopressin  
   blood-brain barrier and, 30  
   dynorphin and, 128  
   erythropoietin production and, 111  
   neuromodulatory action of, 164  
 V8-protease  
   erythropoietin and, 102

Verapamil  
 eburnetoxin and, 154  
 maitotoxin and, 144  
 tessulatoxin and, 155  
 Veratridine  
 sodium channel and, 143  
 Vitamin C  
 host antioxidant defense and,  
 195  
 Vitamin E  
 antioxidant role of, 200  
 gentamicin-induced lipid per-  
 oxidation and, 334  
 oxygen toxicity and, 203  
 tobacco smoke and, 201-2

## W

Water  
 blood-brain barrier transport  
 of, 30  
 Wilson's disease  
 caeruloplasmin deficiency  
 and, 206  
 X  
 Xanthine  
 reactive oxygen metabolites  
 and, 190  
 Xenobiotic prooxidants, 199-202

## Y

Yohimbine  
 ischemic heart disease and,  
 52

## Z

Zimelidine  
 coexisting neurotransmitters  
 and, 301-2  
 Zoanthoxanthins, 145  
 Zollinger-Ellison syndrome  
 drugs for, 270  
 hypergastrinemia of, 269, 281